

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* PETER JOHN HUNT, MOHAMMAD THUDOR,  
DAVID WIXEY, and STEPHEN WILLIAM MCPHEE

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Appeal 2007-2685  
Application 10/715,324  
Technology Center 3700

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Decided: December 10, 2007

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Before MURRIEL E. CRAWFORD, HUBERT C. LORIN, and  
LINDA E. HORNER, *Administrative Patent Judges*.

HORNER, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Peter John Hunt et al. (Appellants) seek our review under 35 U.S.C. § 134 of the final rejection of claims 1-14, 16-29, 31, and 32. Claim 15 has been objected to and claim 30 has been canceled. We have jurisdiction under 35 U.S.C. § 6(b) (2002).

## SUMMARY OF DECISION

We AFFIRM-IN-PART.

### THE INVENTION

The Appellants' claimed invention is to a breathing assistance apparatus for supplying optimal humidity temperature of gases to a patient to assist the patient's breathing (Spec. 1:4-6). The apparatus includes a breathing tube or conduit 6 that connects the humidifier to the patient (Fig. 1). The invention is meant to control the humidity level of the gases in the conduit to minimize condensation in the conduit (Spec. 2:10-19). The object of the invention is to devise a way to optimize the humidity of the gases in the conduit without having to use a temperature probe/sensor at the end of the conduit (Spec. 3:11-13). The conduit also has a heating element 10 disposed in it to heat the gases, if necessary (Spec. 7:11-12). Another object of the invention is to have an indicator that indicates, when the conduit heater is energized, that the heater is operating correctly (Spec. 3:13-15). Claim 1, reproduced below, is representative of the subject matter on appeal.

1. A breathing assistance apparatus adapted to deliver humidified gases at a desired level of humidity or at a desired temperature to a patient using open loop control comprising:

a humidifier having an electrical input power and capable of humidifying said gases up to

a level of humidity prior to delivery to said patient,  
said level of humidity depending on said input  
power to said humidifier, and

a controller or processor configured or  
programmed to:

(a) determine a parameter relating to the  
flow rate of said gases through said apparatus;

(b) determine based on at least said  
parameter the required electrical power input to  
said humidifier to deliver said gases to said patient  
at a level of humidity or at a temperature  
substantially similar to said desired level of  
humidity or said desired temperature; and

(c) supply as said input power to said  
humidifier a level of power substantially similar to  
said determined power input to said humidifier.

### THE REJECTIONS

The Examiner relies upon the following references in the rejections:

Clementi	US 5,031,612	Jul. 16, 1991
McComb	US 5,349,946	Sep. 27, 1994
Daniell	US 5,558,084	Sep. 24, 1996
Rapoport	US 5,546,933	Aug. 20, 1996

The Examiner made the following claim rejections:

1. Claims 1, 2, 16-18, 31, and 32 are rejected under 35 U.S.C. § 102(b)  
as anticipated by Daniell.
2. Claims 3-7, 13, 14, 19-23, and 29 are rejected under 35 U.S.C.  
§ 103(a) as unpatentable over Daniell.

3. Claims 8, 9, 12, 24, and 25 are rejected under 35 U.S.C. § 103(a) as unpatentable over Daniell and McComb or Clementi
4. Claims 10, 11, and 26-28 are rejected under 35 U.S.C. § 103(a) as unpatentable over Daniell and McComb or Clementi, and further in view of Rapoport.<sup>1</sup>

### ISSUES

The Appellants contend that Daniell does not anticipate claims 1, 17, and 32 or render obvious the subject matter of claim 13 because Daniell does not determine a parameter related to the flow rate of gas through the apparatus and use this parameter to control the power supplied to the humidifier (App. Br. 8-12). The Examiner found that Daniell determines the temperature of the humidified gas which relates to the flow of gas because this temperature can be used to determine or estimate the flow rate of the gases (Ans. 3, 5-6). This issue turns on whether the temperature of the

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<sup>1</sup> In the Brief (App. Br. 7), the Appellants listed only a subset of these rejections under the grounds of rejection to be reviewed on appeal. It is not clear from the Appellants' Brief whether the Appellants intended to withdraw the appeal as to the remaining claims not listed, or whether the Appellants intended the remaining claims to be treated in the same manner as the claims listed. Typically, if an appellant chooses not to contest the rejection of a particular claim, the appellant will explicitly state so in the Brief. In this case, the Board is left to guess as to the Appellants' intentions. We choose to address all of the Examiner's rejections as presented in the Answer.

humidified gas, as sensed by the sensor in Daniell, is “a parameter relating to the flow rate of said gases through said apparatus.”

The Appellants further contend that Daniell does not anticipate claims 16 and 31 because Daniell does not disclose a display that indicates when the conduit heater is correctly connected to a controller (App. Br. 10). The Examiner found that Daniell discloses an alarm that sounds when it senses undesirable circumstances or faults and that a no-alarm state itself is an output indicative of having a correct connection between the conduit heater and the controller (Ans. 7). This issue turns on whether Daniell’s alarm, which sounds upon sensing undesirable circumstances or faults, is a disclosure of an indicator that indicates, by a no-alarm condition, when a connector is correctly connected.

The Appellants further contend that Daniell does not render unpatentable claims 3-7, 13, 14, 19-23, and 29 because Daniell does not suggest the particular control strategy covered by the claims and without such a disclosure or suggestion in Daniell, the rejection cannot stand under § 103 (App. Br. 13). The Examiner determined that it would have been obvious to provide Daniell’s controller with monitoring processes to monitor changes in threshold parameter values so that the power to the heaters can be continuously adjusted to maintain the desired humidity or gas temperature (Ans. 4). The issue turns on whether the Appellants have shown that the

Examiner erred in determining that one having ordinary skill in the art would have been led to the claimed control strategy in view of Daniell.

#### FINDINGS OF FACT

We find that the following enumerated findings are supported by at least a preponderance of the evidence. *Ethicon, Inc. v. Quigg*, 849 F.2d 1422, 1427 (Fed. Cir. 1988) (explaining the general evidentiary standard for proceedings before the Office).

1. The ordinary and customary meaning of “parameter” is “any of a set of physical properties whose values determine the characteristics or behavior of something.” *The American Heritage Dictionary of the English Language* (4<sup>th</sup> ed. 2000), found at [www.bartelby.com](http://www.bartelby.com).
2. The ordinary and customary meaning of “related” is “connected by reason of an established or discoverable relation.” *The American Heritage Dictionary of the English Language* (4<sup>th</sup> ed. 2000), found at [www.bartelby.com](http://www.bartelby.com).
3. Daniell discloses a humidifying apparatus 1 including a humidifier heater plate 20 having a temperature transducer 8 which is in electrical connection with the electronic control circuitry in body 2 of the apparatus so that the control means monitors the temperature

of the heating plate and the approximate temperature of the humidified gases at the gases outlet 5 (Daniell, col. 2, ll. 53-58).

4. The temperature of Daniell's heater plate is a physical property whose value is connected by reason of a discoverable relation to the flow rate of gases through the apparatus.
5. The Appellants' own Specification explains:

In the preferred embodiment of the present invention the flow rate of the gases passing through the humidification chamber can first be estimated by comparing the power input required 108 for the humidifier heater plate to the measured temperature 112 of the heater plate. In effect the higher the rate of flow of gases the larger the amount of power required by the heater plate in order to achieve a given heater plate temperature. Thus for a given system the relationship between power to heater plate and flow rate for a given heater plate temperature can either be determined empirically or theoretically calculated.

(Specification 11:7-14). As such, the Appellants' own Specification describes that one can use the heater plate temperature to estimate the flow rate.

6. Thus, Daniell discloses determining a parameter (i.e., heater plate temperature), where the parameter relates to the flow rate of the gases through the apparatus.

7. The system of Daniell further uses a heating element 10 within the conduit 6 to help prevent condensation of the humidified gases within the conduit due to the temperature of the walls of the conduit being close to ambient temperature (Daniel, col. 2, ll. 64-67).
8. Daniell describes that the temperature of the humidified gases at an end of the conduit 6 may be sensed by a transducer 9 (Daniell, col. 4, ll. 59-67) and the ambient temperature may be measured by a temperature transducer 45 (Daniell, col. 3, ll. 35-36).
9. Daniell further discloses a microprocessor 61 that executes steps in a software program that enables it to display information, such as the temperature difference between the humidified gases in the conduit and the ambient temperature, on a display 67 and operate an audio alarm 62 upon sensing undesirable circumstances or faults (Daniell, col. 5, ll. 4-9).
10. As such, Daniell's microprocessor 61 provides control output on the display 67 indicative of the temperature difference between ambient and the conduit and sounds an alarm if "undesirable circumstances or faults" are detected in this measurement, but it does not appear to disclose a display or alarm that provides control output indicating anything about the actual connection of the conduit heater to the microprocessor.



## PRINCIPLES OF LAW

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987).

“Section 103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1734 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). *See also KSR*, 127 S. Ct. at 1734 (“While the sequence of these questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.”)

## ANALYSIS

The Appellants contend that Daniell does not anticipate claims 1, 17, and 32 or render obvious the subject matter of claim 13 because Daniell does not determine a parameter related to the flow rate of gas through the apparatus and use this parameter to control the power supplied to the humidifier (App. Br. 8-12).

In order to determine patentability of these claims, we must first construe the claim language at issue. We determine the scope of the claims in patent applications not solely on the basis of the claim language, but upon giving claims “their broadest reasonable interpretation consistent with the specification” and “in light of the specification as it would be interpreted by one of ordinary skill in the art.” *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). The Appellants submit that the limitation “a parameter relating to the flow rate” should be interpreted to mean “a parameter from which the flow rate can be determined or estimated without the need for any further measurements” (App. Br. 9, 11). The Appellants, however, fail to provide any support or evidence either in the customary meaning of the words used or any definitions provided in the Specification for this proposed definition. The ordinary and customary meaning of “parameter” is “any of a set of physical properties whose values determine the characteristics or behavior of something” (FF 1). The ordinary and customary meaning of “related” is “connected by reason of an established or

discoverable relation” (FF 2). As such, the ordinary meaning of the phrase “a parameter relating to the flow rate” is a physical property whose value is connected by reason of an established or discoverable relation to the flow rate.

Daniell discloses a humidifying apparatus that uses a temperature transducer connected to a control means to monitor the temperature of the heating plate and the approximate temperature of the humidified gases at the gas outlet (FF 3). The temperature of Daniell’s heater plate is a physical property whose value is connected by reason of a discoverable relation to the flow rate of gases through the apparatus (FF 4). As explained in the Appellants’ own Specification:

In the preferred embodiment of the present invention the flow rate of the gases passing through the humidification chamber can first be estimated by comparing the power input required 108 for the humidifier heater plate to the measured temperature 112 of the heater plate. In effect the higher the rate of flow of gases the larger the amount of power required by the heater plate in order to achieve a given heater plate temperature. Thus for a given system the relationship between power to heater plate and flow rate for a given heater plate temperature can either be determined empirically or theoretically calculated.

(FF 5.) As such, the Appellants' own Specification describes that one can use the heater plate temperature to estimate the flow rate (FF 5), and thus Daniell discloses determining a parameter (i.e., heater plate temperature), where the parameter relates to the flow rate of the gases through the apparatus (FF 6). Thus, we find that Daniell anticipates claims 1, 17, and 32, and we sustain the rejection of these claims. The Appellants have presented no separate arguments for patentability of claims 2 and 18. Accordingly, these claims, which are subject to the same ground of rejection, fall with claims 1, 17, and 32. 37 C.F.R. § 41.37(c)(1)(vii) (2007).

We also find unpersuasive the Appellants' argument that claim 13 is patentable over Daniell for failing to suggest a parameter relating to flow rate and address the Appellants' further arguments regarding the patentability of claim 13 *infra*.

The Appellants also contend that Daniell does not anticipate claims 16 and 31 because Daniell does not disclose a display that indicates when the conduit heater is correctly connected to a controller (App. Br. 10). Claim 16 recites a breathing assistance apparatus comprising, *inter alia*, “a controller or processor which ... provides a control output indicative of said conduit heater being correctly connected to said controller or processor and capable of operating in according [*sic*] within predefined limits.” Claim 31 recites a method of connecting a conduit heater to a humidifier comprising “indicating whether the conduit is being correctly connected.”

The system of Daniell heats humidified gases within the conduit and uses temperature transducers to sense the temperature of the gases within the conduit and at ambient (FF 7, 8). Daniell further discloses displaying information, such as the temperature difference between the humidified gases in the conduit and the ambient temperature, and operates an audio alarm upon sensing undesirable circumstances or faults (FF 9). As such, Daniell provides control output indicative of the temperature difference between ambient and the conduit and sounds an alarm if “undesirable circumstances or faults” are detected in this measurement, but it does not appear to disclose a display or alarm that provides control output indicating anything about the actual connection of the conduit heater to the microprocessor, as claimed (FF 10). Thus, we do not sustain the Examiner’s rejection of claims 16 and 31 as anticipated by Daniell.

The Appellants further contend that Daniell does not render unpatentable claims 3-7, 13, 14, 19-23, and 29 because Daniell does not suggest the particular control strategy covered by the claims and without such a disclosure or suggestion in Daniell, the rejection cannot stand under § 103 (App. Br. 13). To the extent that the Appellants are arguing that the motivation or suggestion for the Examiner's proposed modification of Daniell's controller must appear in Daniell itself, this rigid application of the teaching, motivation, suggestion test was explicitly disavowed in *KSR*. 127 S. Ct. at 1741 (“[t]he obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and the explicit content of issued patents.”). The Court in *KSR* held that “the [obviousness] analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the references and creative steps that a person of ordinary skill in the art would employ.” *Id.* In this case, the Examiner set forth a *prima facie* case of obviousness by providing an articulated reasoning with a rational underpinning to support the legal conclusion of obviousness. *See id.* (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). The Appellants have provided no other arguments to persuade us of error in the Examiner's obviousness determination. As such, we sustain the rejection of claims 3-7, 13, 14, 19-23, and 29 under 35 U.S.C. § 103(a) as unpatentable over Daniell.

The Appellants have presented no arguments rebutting the Examiner's rejections of claims 8, 9, 12, 24, and 25 as unpatentable over Daniell and McComb or Clementi, and claims 10, 11, and 26-28 as unpatentable over Daniell and McComb or Clementi, and further in view of Rapoport. As such, we summarily affirm these rejections for the same reasons provided *supra* for claims 1 and 17, from which these claims depend.

#### CONCLUSIONS OF LAW

We conclude the Appellants have failed to show that the Examiner erred in rejecting claims 1, 2, 17, 18, and 32 under 35 U.S.C. § 102(b) as anticipated by Daniell, and failed to show that the Examiner erred in the rejections under 35 U.S.C. § 103(a) of claims 3-7, 13, 14, 19-23, and 29 as unpatentable over Daniell, claims 8, 9, 12, 24, and 25 as unpatentable over Daniell and McComb or Clementi, and claims 10, 11, and 26-28 as unpatentable over Daniell and McComb or Clementi, and further in view of Rapoport. We conclude the Appellants have shown that the Examiner erred in rejecting claims 16 and 31 under 35 U.S.C. § 102(b) as anticipated by Daniell.

#### DECISION

The decision of the Examiner to reject claims 1-14, 17-29, and 32 is affirmed. The decision of the Examiner to reject claims 16 and 31 is reversed.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2007).

AFFIRMED-IN-PART

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TREXLER, BUSHNELL, GIANGIORGI  
BLACKSTONE & MARR, LTD  
105 WEST ADAMS STREET  
SUITE 3600  
CHICAGO, IL 60603